

CALIFORNIA ENERGY COMMISSION

1516 Ninth Street
Sacramento, California 95814-2950
Web Site: www.energy.ca.gov



April 27, 1999

Members of the Senate Energy, Utilities and Communications Committee
Members of the Senate Budget and Fiscal Review Committee
Members of the Senate Appropriations Committee
Members of the Assembly Utilities and Commerce Committee
Members of the Assembly Budget Committee
Members of the Assembly Appropriations Committee
California State Capitol Building
Sacramento, CA 95814

**Re: California Energy Commission's Quarterly Report
Concerning the Public Interest Energy Research Program**

Dear Members:

In accordance with Public Resources Code Section 25620.5(h), the California Energy Commission hereby transmits its Quarterly Report regarding the Public Interest Energy Research (PIER) Program, for the period January 1 through March 31, 1999. The attached report provides the required "evaluation of the progress and a status of the [PIER Program's] implementation" for this quarter.

As reflected in the attached Quarterly Report, the Energy Commission has made substantial progress in implementing the PIER Program to date. California's success with the PIER Program serves as a model for other states and has become the focal point for a Memorandum of Understanding between the Energy Commission and the Department of Energy. Should you have questions or comments concerning this report, please feel free to contact Traci Stevens, Director of Governmental Affairs, at 654-4942.

Respectfully submitted,

DAVID A. ROHY, Ph.D.
Vice Chair and Presiding Member
Research, Development and
Demonstration Committee

ROBERT A. LAURIE
Commissioner and Associate Member
Research, Development and
Demonstration Committee

Attachment

cc: Legislative Analyst's Office

**California Energy Commission's Quarterly Report
Concerning the Public Interest Energy Research Program
(January 1 through March 31, 1999)**



California Energy Commission
Attn: Governmental Affairs Office
1516 9th Street, MS-30
Sacramento, California 95814
(916) 654-4942

California Energy Commission's Quarterly Report Concerning the Public Interest Energy Research Program (January 1 through March 31, 1999)

In accordance with Public Resources Code (PRC) Section 25620.5(h), this document hereby constitutes the California Energy Commission's Quarterly Report for the Public Interest Energy Research (PIER) Program, covering the period from January 1 through March 31, 1999. This report provides the required "evaluation of the progress and a status of the PIER Program's implementation" for this past quarter. It also provided input for the Energy Commission's more detailed "Annual Report Concerning the Public Interest Energy Research Program" (hereafter referred to as the Annual PIER Report), required pursuant to PRC Section 25620.8. (See the Annual PIER Report for more detailed project-specific information and recommendations for program improvement.)

A. Overview of the PIER Program

As specified in PRC Section 25620, the primary mission of the PIER Program is to "improve the quality of life of this state's citizens . . . [by funding] public interest energy research, development and demonstration [RD&D] projects that are not adequately provided for by competitive and regulated energy markets." The funds for this program, totaling approximately \$61.8 million annually, come from the electricity ratepayers of specified investor-owned utilities and are held in the PIER Program Trust Fund Account.

During the first quarter of 1999, the Energy Commission actively managed or developed contracts for 83 separate PIER projects and two specific RD&D programs that received approximately \$56 million in PIER funding awards from the Energy Commission during 1998. The Energy Commission also made significant ongoing progress in preparation for future funding of six key PIER program areas later in 1999. In addition, the Energy Commission completed its designation of an Independent PIER Evaluation Panel and filed its first Annual PIER Report (Publication 500-99-004, March 1999) with the Legislature, as required by law.

Further details concerning the Energy Commission's PIER Program activities for the first quarter are provided below.

B. PIER Projects and Program Funding Activities

This section reviews the current status of PIER projects funded by the Energy Commission's competitive solicitations. In addition, this section also summarizes the Energy Innovations Small Grants Program and Electric Power Research Institute (EPRI) membership.

(1) Competitive Solicitations

In 1998, the Energy Commission successfully completed three competitive solicitations (Transition Funding, First General, and Second General) that provided approximately \$49 million in PIER funds for 83 projects in five identified subject areas. The subject areas include renewable generation, environmentally preferred advanced generation, end-use energy efficiency, energy-related environmental research, and strategic energy research. Future solicitations will include a series of research procurements initiated between now and the end of the third quarter of 1999.

During the first quarter of 1999, none of the PIER-funded projects were scheduled for completion, but various interim results have been achieved as reflected in the two examples below:

Solar Energy Photovoltaic Demonstrations – This PIER transition project was originally designed to install and conduct demonstrations on five solar energy photovoltaic (PV) systems in Southern California. This particular project, however, has been very enthusiastically received and has managed to leverage significantly greater matching funds than expected. As a result, the contractor (Edison Technology Solutions) has been able to install 18 PV systems, including systems at elementary schools in South Pasadena and Chino Hills, a library in San Marino, the public pier and civic center in Santa Monica, the campus at Cal Poly Pomona University, Knotts Berry Farm, and the Thomas Edison Exhibit in Buena Park. These 18 PV systems are now being monitored for reliability, electricity production performance and cost-effectiveness.

Testing of Electricity-Produced Ozone Gas as a Soil Treatment - SoilZone, Inc., in cooperation with the University of California and Edison Technology Solutions, is investigating the potential of using electricity-produced ozone gas to replace toxic chemicals (such as methyl bromide) as a soil fumigant for destroying a variety of microorganisms and pathogens. The results, to date, for this project have been promising, showing that soil treatment with electricity-produced ozone on different crops, soil types, and climates can decrease soil pathogens and increase nutrient availability. Future results are expected to provide data to optimize the treatment rates of ozone, thereby reducing the amount of electricity needed for successful crop treatment.

Further information regarding the PIER-funded projects is contained in the 1998 Annual PIER Report.

(2) Energy Innovations Small Grants Program

In 1998, the Energy Commission initiated an “Energy Innovations Small Grants Program” which will provide \$5 million in PIER funds during the next two years, to help recipients evaluate the feasibility of innovative energy research concepts. This program is intended to provide a simplified process for small businesses, small non-profits, academic institutions, and individuals

that are impacted by the costs of applying to typical PIER solicitations. The program will provide funding support for RD&D innovations that might otherwise not be successfully pursued, and the maximum amount of any individual grant award is \$75,000.

To administer the program, the Energy Commission has entered into an Interagency Agreement with the California State University Institute. This Interagency Agreement will give the Energy Commission access to the technical expertise and research facilities of California's extensive University system. The Agreement will also delegate extensive administrative responsibilities for the program to the California State University system in partnership with the University of California, but the Energy Commission retains full authority to review and approve individual grants.

During the first quarter of 1999, several critical tasks required to implement this grant program were completed. Specifically, the Energy Commission's RD&D Committee reviewed and approved the Administrative Manual for the program (which sets forth the essential policies and procedures needed to run the program), and thereafter the actual Grant Application Manual was completed and posted on the Energy Commission's web site. Initial grant proposals will be received and reviewed during the second quarter of 1999.

(3) Electric Power Research Institute Membership

In 1998, the Energy Commission provided \$1.536 million in PIER funds for a one-year trial membership with the Electric Power Research Institute (EPRI). This funding will allow the Energy Commission to participate in guiding RD&D activities in specified areas and may help to ensure that California continues to receive the benefits of these nationally funded electricity RD&D efforts. Through the EPRI membership, the PIER Program will fund seven public interest targets in the areas of energy efficiency, distributed generation, and system reliability. Specifically, electricity-related research will be conducted in the following seven target areas: 1) water and waste water treatment, 2) food processing, 3) agriculture, 4) improved use of natural gas, 5) advanced metering, 6) distributed generation, and 7) grid system reliability.

During the first quarter of 1999, several activities resulted from the PIER-funded EPRI membership. For example, in January the Energy Commission's Environmentally Preferred Advanced Generation PIER team attended an advisory meeting with EPRI which provided feedback and advice on the PIER draft plan for Environmentally Preferred Advanced Generation. In addition, the EPRI staff provided comments and gave overviews on EPRI's work in the distributed generation and central power plant areas. In February, the Energy Commission staff attended two training sessions on how to use EPRI's Web site, "EPRIweb." The goal of the training is to encourage all Energy Commission technical staff to utilize EPRIweb as an informational tool. Finally, in March EPRI held an informational meeting for Energy Commission staff on the new EPRI target areas for 1999. The PIER Program staff and EPRI technical staff attended sessions to discuss and provide input on the new target areas that are of interest to PIER team leads.

Additional benefits from the Energy Commission's current one-year EPRI membership are expected to occur throughout the remainder of 1999.

C. Ongoing PIER Program Efforts

The following section summarizes the ongoing PIER Program efforts in the following areas: Preparing for Future PIER Funding Efforts, Exploring Joint RD&D Funding Efforts with the Federal Government, Improving PIER Contracting Procedures, and Developing PIER Contract Management and Information Tracking Tools.

(1) Preparing for Future PIER Funding Efforts

In 1998, the Energy Commission staff developed an initial draft of proposed energy-related RD&D program plans for future PIER funding in six areas: (1) Industrial/Agriculture/Water end-use efficiency, (2) Building end-use efficiency, (3) Advanced Generation, (4) Renewable Generation, (5) Energy-Related Environmental Research, and (6) Strategic Energy Research. At a public meeting on January 28, 1999, the PIER Policy Advisory Council provided comments on these six PIER Program areas plans. Based on these comments, the team leads are in the process of implementing appropriate modifications to the program plans, and this effort should be finalized in the second quarter of 1999. Thereafter, additional PIER funding opportunities consistent with these plans will be initiated.

(2) Exploring Joint RD&D Funding Efforts with the Federal Government

During the first quarter of 1999, the Energy Commission held several meetings with the U.S. Department of Energy (DOE) to implement a Memorandum of Understanding regarding joint funding and coordination of various RD&D efforts of benefit to California. The U.S. DOE has several major RD&D programs of significant interest to California, including building energy efficiency, industrial and agriculture energy efficiency, renewables, and clean power generation (e.g., fuel cells and microturbines). The purpose of the meetings was to identify the areas of highest joint interest and to develop appropriate state-federal procurement and contractual mechanisms to enable such joint RD&D efforts to proceed.

(3) Improving PIER Contracting Procedures

In the first quarter of 1999, the Energy Commission staff drafted a new proposed procedure for conducting "competitive negotiation processes" for future PIER contracts, and a public workshop was held on this topic. Developing a process for effectively conducting competitive

negotiations is important for the PIER Program because it will allow the Energy Commission to negotiate with bidders before they submit their final bids, thereby improving the quality of RD&D proposals and the subsequent work. Public input on the proposed procedures was very supportive. The Energy Commission is now in the process of preparing a pilot solicitation to test these competitive negotiation procedures in anticipation of adopting related regulations later in 1999.

(4) Developing PIER Contract Management and Information Tracking Tools

During the first quarter of 1999, the Research Contract Management System (RCMS) was introduced to PIER contract managers. The RCMS is an internet-based software program that allows managers to more efficiently track projects and contracts. The Energy Commission staff is currently working to ensure that the RCMS will meet the needs of PIER contract managers. The software program will become fully operational in the second quarter of 1999.

The PIER staff are also in the process of developing an Information Management System (IMS) for the PIER Program. The IMS will provide a maintainable system of user-friendly interfaces for quick and reliable access to information, including the viewing, manipulation and extension of databases. During the first quarter of 1999, the staff began work to establish the PIER Program's business information needs, data requirements and processes, and distributed client/server application requirements.

D. Information Transfer/Reporting Activities

A key goal of the PIER Program is to ensure the results are successfully transferred into the market. The Energy Commission has undertaken several steps to keep stakeholders, policy makers and the general public fully informed regarding PIER funded RD&D efforts.

During the first quarter of 1999, the Energy Commission completed its first Annual PIER Report, which provides project-specific information and recommendations for program improvement. In addition, the Energy Commission has maintained and continuously updated its PIER-related web site to keep the current status of projects available to anyone who is interested. Finally, the Energy Commission has initiated preparations to sponsor a major PIER-related symposium to facilitate the exchange of relevant information and ideas among researchers, technology users, and other interested parties from throughout the state, nation, and international community. This symposium will be held during October 25-27, 1999, in San Diego, California.

E. Designation of the Independent PIER Evaluation Panel

In accordance with Public Resources Code Section 25620.9(a), during the first quarter of 1999 the Energy Commission completed its designation of an independent panel of experts "to conduct a comprehensive evaluation of the PIER program." A complete list of the 12 members designated to serve on the Independent Panel is contained in the 1998 Annual PIER Report. The

Independent Panel is required to submit its preliminary report to the Governor and the Legislature by March 31, 2000; a final report (including additional findings and recommendations) is due by March 31, 2001.

The Energy Commission designated three new members to the Independent Panel during the first quarter of 1999. Following are brief descriptions of the new panel members.

- Dr. Patricia A. Buffler is the Dean Emerita and Professor of Epidemiology and Public Health at the School of Public Health, University of California, Berkeley. Dr Buffler's research interests include epidemiology of childhood leukemia and health effects of non-ionizing radiation, environmental tobacco smoke, and exposure to hazardous waste sites. She serves on the Board of Directors, U.S.–Japan Radiation Effects Research Foundation, Hiroshima, Japan; the World Health Organization, Expert Advisory Panel on Occupational Health; the U.S. Environmental Protection Agency Science Advisory Board; the U.S. Public Health Service Centers for Disease Control and Prevention, Task Force on Community Preventive Services; and the National Institute of Health, National Advisory Council on Environmental Health Sciences.
- Fred W. Kittler is the co-founder and principal of Velocity Capital Management, an investment firm based in Palo Alto that provides equity funding for public and private technology and communications companies. Mr. Kittler was a research analyst and portfolio manager for J. P. Morgan Investment Management, where he managed an \$800 million portfolio of small technology and health science company stocks. He serves on the Visiting Committee on Advanced Technology for the National Institute for Standards and Technology. Mr. Kittler previously established a foundation, Connections for Learning, to promote the use of computer networks for K-12 education in the New York area.
- Dr. Esteban Soriano established his own market research and program assessment company, The Resource Group, which specializes in educational and economic assessments. He currently serves as the Vice President for University Advancement at California State Polytechnic University, Pomona. Dr. Soriano is an expert in communication strategies, economic impact studies and assessments, methodology and research design, and has extensive experience relative to electric and water utilities.

Other members of the panel include: Dr. Harold M. Agnew, Dr. Richard E. Balzhiser, Dr. Linda R. Cohen, Dr. John S. Foster, Jr., Dr. T. Kenneth Fowler, Peter M. Miller, Dr. James L. Sweeney, Dr. Mary L. Walshok, and Carl J. Weinberg.

In February 1999, the Energy Commission approved a two-and-a-half-year contract with the California Council on Science and Technology (CCST) for \$600,000. This contract will provide funds for expense-related reimbursements of the Independent Panel members and for project management and technical support efforts conducted primarily by CCST and its subcontractor, the RAND Corporation.

During the first quarter of 1999, the Independent Panel held two separate public meetings to begin its review and preliminary fact-finding efforts. Among other things, the Independent Panel obtained extensive information on the PIER Program, including a historical overview of electricity restructuring and the evolution of the PIER Program, presentations by PIER Program team leads, a description of the PIER management structure, an overview of the Renewables Program and its relationship to the PIER Program, a description of the California Board for Energy Efficiency and its relationship to the PIER Program, the structure and role of the PIER Policy Advisory Council, and a summary of RD&D projects funded by PIER to date. The Independent Panel plans to contact representatives of the Governor and Legislature to discuss its mandated evaluation and reports. The next meeting for the Panel will be on April 27 and 28, 1999, in Sacramento.

F. Conclusion

The Energy Commission remains fully committed to administering the PIER Program in an efficient and effective manner that ensures public input and accountability. The PIER section of the Energy Commission's Web Site can be accessed at:

<www.energy.ca.gov/research/PIER

This Web Site is one of the most effective means of communicating with stakeholders and the public regarding the PIER Program. The Energy Commission staff also plans to have a PIER Program brochure available in Legislators' offices in mid-1999.

In summary, the Energy Commission continues to successfully develop and implement the PIER Program, in accordance with the directives contained in AB 1890 and SB 90. Should you have questions or comments, please feel free to contact Traci Stevens, Director of Governmental Affairs, at 654-4942.
